REMARKS

Claims 8-16 are pending in the present application. Claims 8, 11 and 14 have been amended.

Claim Objections

Claims 8, 11 and 14 have been objected to in view of the informalities listed on page 2 of the current Office Action dated July 25, 2008. This objection is respectfully traversed for the following reasons.

Claim 8 has been corrected in view of the concerns raised by the Examiner to feature "so that a frequency of the output signal is maintained as the output signal transitions to being stopped". Claims 11 and 14 have been amended in a similar manner. Although not necessarily limited thereto and as discussed merely for the purpose of illustration and not to be limiting, Fig. 6 of the present application shows an output state from time 0T to 100T wherein a stabilized oscillating output is provided, and also shows a stopping state from time 100T to 300T wherein the oscillating output signal transitions to being stopped. The Examiner is respectfully requested to withdraw the objections to the claims in view of the above noted corrections.

Claim Rejections-35 U.S.C. 103

Claims 8-10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Lyon reference (U.S. Patent No. 5,502,663) in view of the Karjalainen et al.

reference (U.S. Patent Application Publication No. 2003/0099365). This rejection is respectfully traversed for the following reasons.

Claim 8 features a signal generator that uses an IIR type digital filter having multipliers in a feedback loop to provide an output signal, including in combination a control unit that "changes the coefficients to predetermined values during an output stopping state to stop the output signal, so that a frequency of the output signal is maintained as the output signal transitions to being stopped". Applicant respectfully submits that the signal generator of claim 8 would not have been obvious in view of the prior art as relied upon by the Examiner for at least the following reasons.

The Examiner has primarily relied upon Fig. 6A of the Lyon reference as including a digital filter with delays 605 and 606, multipliers 601 and 602 and adders 611 and 612. Parameter coefficient calculator 620 provides coefficients B1 and B2 to multipliers 601 and 602. However, as acknowledged by the Examiner, the Lyon reference does not disclose, teach or suggest changing coefficients to predetermined values during an output stopping state, so that a frequency of the output signal is maintained as the output signal transitions to being stopped, as would be necessary to meet the features of claim 8.

In an effort to overcome the acknowledged deficiencies of the primarily relied upon Lyon reference, the Examiner has alleged beginning on page 3, line 13 of the current Office Action dated July 25, 2008, that moving the poles toward the center of the unit circle of the Z plane reduces decay time of an output signal and increases

stability, and that the amplitude of the output signal is reduced while the frequency is maintained. The Examiner has further relied upon Figs. 4 and 5 of the Karjalainen et al. reference to assert that shifting the pair of poles from the unit circle to inside the unit circle while maintaining degrees of angle is needed to shorten delay time. The Examiner has alleged that it would have been obvious to combine the digital filter of the Lyon reference with the pole relocation of the Karjalainen et al. reference to change the filter coefficients to correspond to poles within the unit circle. The Examiner has apparently asserted that by doing this, decay time is shortened and the frequency of the output signal is maintained, so that accurate control of the coefficients in an IIR filter and better IIR filter design are provided.

Applicant however respectfully submits that the Examiner has not established the necessary motivation and/or recognition in the relied upon prior art of the desire to select coefficients so as to maintain the frequency of an output signal provided from a signal generator, as the output signal transitions to being stopped. In other words, the prior art does not recognize that the generation of harmonics during stopping of an output signal generated using an IIR type digital filter can be minimized by selecting coefficients so as to maintain the frequency of the output signal as the output signal transitions to being stopped.

The primarily relied upon Lyon reference does not specify the values of coefficients of a digital filter at the onset of a stopping state of a generated signal. Moreover, the secondarily relied upon Karjalainen et al. reference is concerned with

modal equalization, wherein the rate of decay of selected modal resonances are modified to actively control low-frequency reverberation of sound projected into a room. That is, the Karjalainen et al. reference is concerned with decay rate of a modal resonance, not with stopping an output signal provided from a signal generator that includes an IIR filter. The Karjalainen et al. reference does not recognize or teach that rather than stopping an output signal by forcibly switching coefficients to zero, the generation of harmonics can be prevented and quality of signal generation can be improved by selecting coefficients so as to maintain the frequency of a generated output signal as the output signal transitions to being stopped. The Karjalainen et al. reference clearly fails to provide such recognition or teaching, because the Karjalainen et al. reference is not concerned with stopping a generated signal, but is rather concerned with modifying decay rate of modal resonances.

Accordingly, Applicant respectfully submits that the secondarily relied upon Karjalainen et al. reference and the Examiner's assertion of common knowledge would not provide the necessary motivation to modify the primarily relied upon Lyon reference to make obvious the features of claim 11. Applicant therefore respectfully submits that the signal generator of claim 11 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection of claims 8-11 is improper for at least these reasons.

Claims 11-16 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Rambaud et al. reference (U.S. Patent No. 6,980,592) in view of the

Karjalainen et al. reference. This rejection is respectfully traversed for the following reasons.

The signal generator of claim 11 is featured as using an IIR type digital filter having multipliers in a feedback loop to provide an output signal, including in combination a selector that "changes the coefficients to predetermined values during an output stopping state to stop the output signal, so that a frequency of the output signal is maintained as the output signal transitions to being stopped".

The Examiner has relied upon the Rambaud et al. reference as generally showing a digital equalizer including coefficient selectors. The Examiner has acknowledged that the Rambaud et al. reference fails to disclose specific teaching of maintaining the signal frequency as a generated signal transitions to being stopped. In an effort to overcome this acknowledged deficiency of the primarily relied upon Rambaud et al. reference, the Examiner has relied upon alleged common knowledge and the Karjalainen et al. reference in a similar manner as with respect to claim 8.

Applicant respectfully submits that the Karjalainen et al. reference does not recognize or teach that rather than stopping an output signal by forcibly switching coefficients to zero, the generation of harmonics can be prevented and quality of signal generation can be improved by selecting coefficients so as to maintain the frequency of a generated output signal as the output signal transitions to being stopped. The Karjalainen et al. reference clearly fails to provide such recognition or teaching, because the Karjalainen et al. reference is not concerned with stopping a generated

signal, but is rather concerned with modifying decay rate of modal resonances.

The Karjalainen et al. reference and the common knowledge as alleged by the Examiner would not provide the necessary motivation for modifying the Rambaud et al. reference to make obvious the features of claim 11. Accordingly, Applicant respectfully submits that the signal generator of claim 11 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection of claims 11-13 is improper for at least these reasons.

The output stopping method of a signal generator that uses an IIR type digital filter having multipliers in a feedback group to provide a desired signal of claim 14 includes in combination selecting coefficients; and "changing the coefficients to predetermined values during an output stopping state to stop output of the desired signal, so that a frequency of the desired signal is maintained as the desired signal transitions to being stopped".

Applicant respectfully submits that the output stopping method of claim 14 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection of claims 14-16 is improper, for at least somewhat similar reasons as set forth above with respect to claim 11.

Conclusion

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for

at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (571) 283-0720 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicant hereby petitions for an extension of one (1) month to November 25, 2008, for the period in which to file a response to the outstanding Office Action. The required fee of $130.00 should be charged to Deposit Account No. 50-0238.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

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